Electrical Power Capacity Upgrade (EPCU) Project

Purpose and Need

The EPCU Project will increase capacity and improve reliability and resiliency of the electrical transmission and distribution utility systems at LANL to successfully align with and meet the Department of Energy’s (DOE) and National Nuclear Security Administration’s (NNSA) strategic plan and mission.

“A safe, capable, modern, and reliable electric utility infrastructure is an absolute requirement for the mission critical work at LANL.”

The Project involves essential upgrades, modifications, and improvements to key electric utility transmission (115kV) and distribution (13.8kV) infrastructure to ensure reliable, safe, secure, and efficient support of basic utility operations to support LANL’s mission for solving national security challenges through simultaneous excellence.

Mission Need

DOE/NNSA requires a reliable and redundant electrical power transmission supply to support mission programs and other activities conducted at LANL facilities. Electrical power supply forecasts project that existing transmission lines that serve LANL and Los Alamos County will reach capacity before 2027, and DOE/NNSA will not have the electrical power supply to meet mission requirements.

Dependence on only two transmission lines to supply LANL and Los Alamos County is inconsistent with utility industry best practices for fully redundant power line service to large, critical load areas. Other major electricity users in the northern New Mexico area (i.e., Santa Fe, Española, and Farmington) are served by three or more power lines.

Proposed Action

The Proposed Action would allow for a three-phase, overhead, 115 kV electric power transmission line approximately 14 miles long. This transmission line would originate at the Norton Substation and cross approximately 2.5 miles on BLM-administered land, then cross approximately 8.6 miles on National Forest System land and ultimately span White Rock Canyon onto DOE/NNSA-managed lands at LANL for approximately 3 miles. Once the transmission line reaches LANL, the project would expand to include a host of additional electrical transmission, distribution, and system upgrades and electrical construction activities across the campus.

The transmission line would be located within a 100-foot-wide utility right of way. In addition, optical ground wire installation along the route would be incorporated into the overhead transmission lines, along with an optical fiber splice box mounted to a pole structure at an accessible location for future connection by others between the Norton Substation and the Rio Grande crossing.
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### Alternatives

**No Action Alternative**
- Must be considered as part of the NEPA process
- Under the No Action Alternative, a new transmission line that originates at the Norton Substation and ends at LANL and its structures would not be constructed
- Any potential environmental effects along the proposed transmission line route would not occur
- BLM- and SFNF-administered lands would continue to be available for uninterrupted multipurpose use
- DOE/NNSA land uses at LANL would also remain unchanged
- The benefits of reliability in electrical power supply would not be created
- LANL and Los Alamos County would not have an additional reliable or redundant transmission line for their respective operations
- More frequent and longer duration of outages would be expected due to extensive maintenance problems with existing lines and shortfalls in the regional power supply
- Load shedding would occur until additional power could be returned to LANL for normal operations

**Proposed Alternative**

**NEPA Coordination**
Current Forest Service and BLM guidance was assessed, and the proposed alternative was selected in coordination with the SFNF and BLM to avoid and minimize impacts to biological resources, cultural resources, and aesthetic landscape and to maximize use of existing roadways and utility rights of way. Tribal coordination has been ongoing and will continue to occur throughout the project.

**Agencies Involved**
- DOE/NNSA
- USDA Forest Service-Santa Fe National Forest
- USDOI Bureau of Land Management-Taos Field Office

**Agencies Contacted**
- U.S. Department of the Interior
- National Park Service
- State Historic Preservation Office
- Advisory Council on Historic Preservation

**Tribal Coordination**
NNSA sent notifications to the following New Mexico Tribal Nations announcing the NEPA Environmental Assessment (EA) scoping period and comment period. Technical briefings have been provided upon request.

Pueblo de San Ildefonso
Pueblo de Cochiti
Pueblo of Jemez
Pueblo of Santa Clara
Pueblo of Tesuque
Hopi Tribe of Arizona
Ohkay Owingeh
Pueblo of Laguna
Pueblo de Nambe
Pueblo of Isleta
Pueblo of Picuris
Pueblo of Pojoaque
Pueblo of Santa Ana
Pueblo of Santo Domingo
Pueblo of Zia
Pueblo of Taos
Pueblo of Zuni
Jicarilla Apache Nation
Mescalero Apache Tribe
Navajo Nation
Southern Ute Indian Tribe
Ute Mountain Ute Tribe
Ysleta Del Sur

**Evaluation of Alternatives**

DOE/NNSA evaluated the need to increase electrical transmission capacity and performance to meet electrical demands. They evaluated several alternatives to address the potential risk of exceeding the existing power capacity and provide redundant and reliable electrical power to LANL. The evaluation criteria for potential alternatives included the abilities to:

- Maximize power transmission and distribution quality, resiliency, and reliability to critical Laboratory areas
- Provide additional Mega-Volt Ampere (MVA) capacity (up to 80 MVA) distribution feeder circuits and switchgear to the Strategic Computing Complex
- Minimize disruption to ongoing operations and programs during construction
- Provide additional substation distribution interties (connections between major locations) to increase operational flexibility
- Increase operational flexibility for future expansion, including onsite generation
- Provide additional MVA capacity (200–266 MVA) 100 percent redundancy for all offsite and onsite transmission

**Alternative Routing Options**
- Stakeholder Engagement Involved to find optimum route

### Alternatives Considered but Eliminated

<table>
<thead>
<tr>
<th>Alternatives Considered but Eliminated</th>
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<tr>
<td>Reconductoring Existing Transmission Line</td>
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<tr>
<td>Expand Onsite Power Generation</td>
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<tr>
<td>Small Modular Nuclear Reactor Generation</td>
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<td>Wind Generation</td>
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<td>Alternative Routing Options</td>
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These alternatives were considered based on the evaluation criteria and were eliminated from detailed study.

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**The NEPA Process Overview**

1. Project Announcement
2. Public Involvement Opportunity
3. Document Publication
4. Public Notice
5. Draft EA
6. Public Comment Period
7. Scoping Period
8. 30-Day Scoping Period Scoping Meeting
9. Notice of Availability
10. Final EA/Draft Decision Document
11. Final Decision Document
Affected Environment: Heritage Resources

Heritage Resources Present include:
- Archaic artifact scatters with hearths
- Ancestral Pueblo roomblocks
- Ancestral Pueblo agricultural fields
- Petroglyphs
- Hispanic and Anglo Homesteads
- El Camino Real de Tierra Adentro National Historic Trail
- Traditional Cultural Properties

Surveys and Identification
Class III cultural resource inventories were conducted in 2020, 2021, 2022, and 2023 within the Area of Potential Effects (APE).
- 44 previously recorded cultural resources were identified and documented
- 57 newly identified cultural resources were documented
- Tribal monitors participated in surveys for the proposed route

Physical Area of Potential Effects (APE)
- Total = 1,735 acres
- 200-foot-wide corridor paralleling Reeves Line and the portion on DOE/NNSA property
- 400-foot-wide corridor for the proposed route east of the Reeves Line on Santa Fe National Forest and Bureau of Land Management land
- Staging areas and access roads, with a 50-foot buffer

Visual APE is a 3-mile radius around the proposed powerline.

Mitigations
- Transmission structures and access roads will not be sited within identified cultural resource boundaries.
- Consultation with culturally affiliated Tribal Nations will be completed to ensure that impacts to known cultural resources—including traditional cultural properties—are avoided to the maximum extent possible.
- Federal agencies and tribal monitors will monitor ground-disturbance activities.
- Ground-disturbing activities near the El Camino Real National Historic Trail will be completed in consultation with Forest Service, Bureau of Land Management, and National Park Service cultural resource and recreation specialists.
- National Historic Preservation Act Section 106 process is ongoing; determination of adverse effects to cultural resources would result in additional mitigation measures.
Affected Environment: Vegetation, Wildlife, and Water

Vegetation
- Pedestrian vegetation surveys covering the full width of the easement buffer were conducted in 2020, 2021, and 2022 on all proposed routes. No sensitive plant species were documented.
- All ground-disturbing work on the Santa Fe National Forest would follow the Guide to Noxious Weeds Prevention Practices.

Water
- Transmission lines would cross approximately 1,500 feet above the river channel, and no structures would be sited along its banks.
- Transmission line poles would not be placed in ephemeral streams.
- Erosion would be minimal and short term.

Mitigations
- Disturbed areas would be revegetated with appropriate native vegetation.
- Any impacts to vegetation would be temporary and minor, with the implementation of best management practices (BMPs) during construction and operation activities.
- Short-term impacts to water resources would be reduced through design and BMPs.

Wildlife
- Avian point count surveys along several proposed routes were conducted in 2020, 2021, and 2022. Documented bird species included:
  - Pinon Jay
  - Gray Vireo
  - Bendire’s Thrasher
- The project would have "no effect" on the six species federally listed as threatened or endangered.
- Of the 20 state-listed threatened or endangered species that may occur in the project vicinity, the project would have no potential impacts to 18; two have low potential impacts.
- Project activities are found to be consistent with the Santa Fe National Forest Plan for the eight Forest Service Species of Conservation Concern that could occur or have suitable habitat within the project area.
- The project would have no impact on the 16 Bureau of Land Management sensitive species that may occur.

Mitigations
- Biological monitors would be onsite during construction to ensure that sensitive species and active migratory bird nests are not disturbed.
- No vegetation removal during bird-breeding season without conducting nest-checks.
- Implementation of mitigation measures would minimize the potential of an incidental “take” of migratory birds or bald and golden eagles.
  - Collision-deterrence wire markings would be installed on conductor crossing the Rio Grande.
  - Transmission structures that minimize risk of injury/electrocution to birds would be used.
**Affected Environment: Visual, Recreation and Trails**

### Visual and Scenic Resources
- A comprehensive visual analysis was completed to quantify the potential visual impacts of an additional transmission line to the average recreational user.
- A cumulative viewshed analysis was performed on a 1-meter resolution lidar-derived digital terrain model to iteratively assess intervisibility between current and proposed powerline routes, and all cells within the terrain model.
- By performing a cumulative analysis, every 1 x 1 m cell within the study area is simultaneously treated as a Key Observation Point (KOP).
- The analysis characterizes current intervisibility with existing powerlines, and provides a basis to predict change in intervisibility after the proposed action.

#### Current:
- All areas that are intervisible with an existing powerline.
- Intervisibility results are shown with a continuous color-scale (representing values 1–322): none (grayscale), very low (purple), low (blue), medium (yellow), high (orange), and very high (red).

#### After Proposed Action:
- Areas from which a powerline is not currently visible but would be with construction of the proposed transmission line.
- Intervisibility results are shown on the same color-scale as above.

### Mitigations
- Locate new transmission line structures in proximity to existing development, including roadways, to minimize potential visual impacts to undeveloped areas.
- Match materials with existing transmission line structures to minimize contrasts in color, form, line, pattern/texture, and use a low-reflective conductor.
- Use weathering steel structures that have a dark brown color to minimize contrast.
- Minimize the amount of vegetation clearing in utility corridor and restore vegetation in areas disturbed by construction activities.

### Recreation and Trails
- Recreation opportunities in the Caja del Rio include hiking, mountain biking, rock climbing, primitive camping, all-terrain vehicle riding, and gun range shooting.
- During construction activities, some recreational experiences could be impacted in the short term by no or limited access to trails, construction noise, and dust.
- Recreation would continue to occur during construction within the Diablo Canyon Recreation Area, and on Santa Fe National Forest and BLM-administered lands adjacent to the project area, including trail use, dispersed camping, and dispersed target shooting.
- The proposed transmission line would be located parallel to, then cross, the El Camino Real National Historic Trail and will pass near the Dead Dog Trailhead.

### Mitigations
- Potential impacts to trail recreation would be minimized or eliminated through use of existing disturbances (i.e., existing roads), project design that minimizes proximity to trail resources, and avoidance of locating new poles or wires in vehicle paths near roads/trails.
- The siting of ground-disturbing activities near the El Camino Real National Historic Trail will be completed in consultation with the Forest Service, BLM, and National Park Service cultural resource and recreation specialists to ensure that potential impacts are avoided or minimized.
Santa Fe National Forest

Amendments to the 2022 Santa Fe National Forest Land Management Plan (Forest Plan)

Existing Plan

The Land Management Plan, or Forest Plan, provides for social, economic, and ecological sustainability and multiple uses on the Santa Fe National Forest. The plan establishes direction to guide management activities to achieve this purpose. If a proposed project or activity is not consistent with the applicable plan components, the responsible official may amend the plan so that the project or activity will be consistent with the plan as amended (36 CFR 219.15(c)(3)). Proposed amendments to the 2022 Santa Fe National Forest Land Management Plan would allow for the construction and maintenance of the transmission line on Santa Fe National Forest administered lands.

Purpose of Amendments

The purpose of these amendments is to change management direction to allow for the construction and maintenance of the transmission line. The 2022 Forest Plan would be amended under the 2012 Planning Rule (36 CFR 219). The plan amendments would allow the proposed transmission line to cross the Caja del Río on the Santa Fe National Forest. In addition, these amendments allow for construction and maintenance of the new proposed linear feature in an inventoried roadless area (IRA) that has a desired condition of high scenic integrity and semiprimitive nonmotorized recreation opportunity spectrum.

Proposed Plan Amendments

Establishment of the S/N Transmission Line Utility Corridor (SNTUC) Management Area

- Construction of utility infrastructure for the S/N transmission line (e.g., towers, poles) or associated above-ground facilities should blend in with the general landscape to help minimize scenery impacts (e.g., coloration of towers and poles, use of wood poles, non-glare tint on wires, aligning of infrastructure with topography).
- Management activities should be consistent with the scenic integrity objective of “low.”
- The S/N Transmission Line Utility Corridor Management Area should be managed for semiprimitive nonmotorized recreation opportunity spectrum.

Caja del Río Wildlife and Cultural Interpretive Management Area

- Maximize use of existing utility line corridors for additional utility line needs. New utility corridors and communication sites will not be allowed except for the Los Alamos National Laboratory Electrical Power Capacity Upgrade Project, S/N transmission line.

Inventoried Roadless Area

- Management activities should be consistent with the scenic integrity objective of high except within the SNTUC Management Area.

National Historic Trails

- Management activities in NHT corridors should be consistent with or make progress toward achieving scenic integrity objectives of high or very high within the foreground of the trail (up to 0.5 mile either side) or within the identical trail viewshed—the landscape area visible from the trail based on topography except within the SNTUC Management Area.